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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/661,471	09/12/2003	Robert E. W. Hancock	UBC1180-2	7167

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EXAMINER	
AUDET, MAURY A	
ART UNIT	PAPER NUMBER
1654	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/05/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/661,471	HANCOCK ET AL.	
	Examiner	Art Unit	
	Maury Audet	1654	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 February 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *89-110* is/are pending in the application.

4a) Of the above claim(s) *89-92 and 94-98* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *93 and 99-110* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *12 September 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *9/13/04;3/21/05*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

The present application has been transferred from former Examiner Young to the present Examiner.

Election/Restrictions

Applicant's election with traverse of Group V, claim 93 and 99-110, as drawn to the elected peptide of SEQ ID NO: 7, in the reply filed on 1/9/07 is acknowledged. The traversal is on the ground(s) that it would not be an undue burden to search other peptide sequences of the invention, e.g. SEQ ID NOS: 5-6, 8-10, and 13-17, since a search of some of these sequences would necessarily "reveal" art relevant to the sequences. This is not found persuasive for the reasons of record (see e.g. a comparison of 14 mer SEQ ID NO: 6 and 13 mer elected SEQ ID NO: 7, wherein no more than 3mer core is found identical). Additionally, Applicant has not supported the previous statement of record, that any art "revealed" would necessarily render obvious any of the other peptides beyond that of elected SEQ ID NO: 7. "Revealing" potential art and searching an actual distinct peptide structure as to whether "real" art exists on that peptide are two different things. Thus, a search of these distinct peptides must turn on a peptide by peptide analysis, there being no substantial core structure therebetween.

Claims 89-92 and 94-98 are withdrawn as being drawn to non-elected subject matter. Claims 93 and 99-110 are examined on the merits as drawn to the elected peptide of SEQ ID NO: 7.

The requirement is still deemed proper and is therefore made FINAL.

Claim Objections

Claims 105-110 are objected to because of the following informalities: For clarity, GM-CSF should be first identified by it's full name followed by the aforementioned in parenthetical, namely granulocyte-macrophage colony stimulating factor (GM-CSF). Appropriate correction is required. It is noted that"[t]he colony stimulating factors (CSFs), granulocyte-macrophage colony stimulating factor (GM-CSF) and granulocyte colony stimulating factor (G-CSF), are naturally occurring cytokines that stimulate the production and antibacterial function of neutrophils and monocytes" (http://www.nichd.nih.gov/cochrane/Carr/CARR.HTM). "It is produced in response to a number of inflammatory mediators by mesenchymal cells present in the haemopoietic environment and at peripheral sites of inflammation. It *stimulates the production of neutrophilic granulocytes, macrophages, and mixed granulocyte-macrophage colonies from bone marrow cells and can stimulate the formation of eosinophil colonies from foetal liver progenitor cells*. It also has some *functional activities in mature granulocytes and macrophages*. It is *used to promote the recovery of the white blood cells following chemotherapy*. (Chemical name: Colony-stimulating factor 2) (Online Medical Dictionary, http://cancerweb.ncl.ac.uk/cgi-bin/omd?query=GM-CSF, (12 Dec 1998)). Thus, GM-CSF appear to be both naturally occurring and exogenously administered, the latter being enabled for the present invention.

Claim Rejections - 35 USC § 112 1st Enablement

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 99-100 and 106-107 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Namely, peptide SEQ ID NO: 7 has not been shown to have any of anti-inflammatory or anti-septic activity [OR even antimicrobial activity/immune system stimulation (the claimed invention), alone and absent the antibiotic or granulocyte-macrophage colony stimulating factor (GM-CSF), respectively it is administered in combination with – the latter already being known to carry out their functions respectively].

The first paragraph of 35 U.S.C. 112 states, "The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same...". The courts have interpreted this to mean that the specification must enable one skilled in the art to make and use the invention without undue experimentation. The courts have further interpreted undue experimentation as requiring "ingenuity beyond that to be expected of one of ordinary skill in the art" (Fields v. Conover, 170 USPQ 276 (CCPA 1971)) or requiring an extended period of experimentation in the absence of sufficient direction or guidance (In re Colianni, 195 USPQ 150 (CCPA 1977)). Additionally, the courts have determined that "... where a statement is, on its face, contrary to generally accepted scientific principles", a rejection for failure to teach how to make and/or use is proper (In re Marzocchi, 169 USPQ 367 (CCPA 1971). Factors to be considered in determining whether a disclosure meets the enablement requirement of 35 U.S.C. 112, first paragraph, have been described in In re Colianni, 195 USPQ 150, 153 (CCPA 1977), have been clarified by the Board of Patent Appeals and Interferences in Ex parte Forman, 230 USPQ 546 (BPAI 1986), and are summarized in In re Wands (858 F2d 731, 737, 8 USPQ2d 1400, 1404 (Fed Cir. 1988). Among the factors are the nature of the invention,

the state of the prior art, the predictability or lack thereof in the art, the amount of direction or guidance present, the presence or absence of working examples, the breadth of the claims, and the quantity of experimentation needed.

The instant disclosure fails to meet the enablement requirement for the use of peptide SEQ ID NO: 7 has not been shown to have any of anti-inflammatory or anti-septic activity.

The nature of the invention: The invention is drawn to the combination of antibiotics or granulocyte-macrophage colony stimulating factor (GM-CSF) with peptide SEQ ID NO: 7, to stimulate innate immunity, and also as to the peptide, to render anti-inflammatory activity and/or anti-sepsis activity.

The state of the prior art and the predictability or lack thereof in the art:

There is no prior art of record on peptide SEQ ID NO: 7, other than Applicant's own description/tests of the 13mer artificial peptide sequence.

The amount of direction or guidance present and the presence or absence of working examples: Enablement must be provided by the specification unless it is well known in the art. *In re Buchner* 18 USPQ 2d 1331 (Fed. Cir. 1991). Specification para 177 describes that: "Experiments were carried out with peptide and sub-optimal Cefepime given 6 hours after the onset of systemic S. aureus infection (FIG. 1). The data in FIG. 1 is presented as the mean.+-.standard error of viable counts from blood taken from the mice 24 hrs after the onset of infection. The combination of sub optimal antibiotic (cefepime) dosing and SEQ ID NO: 7 resulted in improved therapeutic efficacy. The ability of the peptides to work in combination with sub-optimal concentrations of an antibiotic in a murine infection model is an important finding. It suggests the potential for extending the life of antibiotics in the clinic and reducing incidence of antibiotic resistance." There is no discussion of SEQ ID NO: 7 alone or it's ability

to do any of anti-inflammatory, anti-sepsis, or stimulate innate immunity. Only a conclusion that SEQ ID NO: 7 works in synergy with Cefepime to improve S. aureus infection. And further conclude that SEQ ID NO: 7 must somehow "stimulate innate immunity", the claimed invention.

At the present time, the above is deemed inconclusive evidence that SEQ ID NO: 7 works in any other way than that of a carrier alongside the combination with an antibiotic or GM-CSF, to either treat infection on the first front or stimulate innate immunity on the latter (or render anti-flammatory or anti-sepsis properties alone as in claims 99-100 and 106-107), which those compounds are known to do alone.

The breadth of the claims and the quantity of experimentation needed: Claims 99-100 and 106-107 are drawn broadly to the use of a peptide of SEQ ID NO: 7, alone, to have "anti-inflammatory activity" and "anti-sepsis activity". any MBDs for conjugation to an agent and delivery for diagnostic and cellular modifying capabilities. There were no tests found conducted alone to substantiate the enablement of SEQ ID NO: 7 to carry out these functions, relevant to an infection or otherwise. Since SEQ ID NO: 7 is an artificial sequence, no art was found to describe such or it's function. Absent further evidence (e.g. to something the Exminer overlooked in the specification or via 132 Declaration) there is insufficient teachings in the specification or art sufficient to overcome the teachings of unpredictability in the art as to enablement; it would require undue experimentation by one of skill in the art to be able to practice the invention commensurate in scope with the claims.

Claim Rejections - 35 USC § 112 2nd

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 93, and 99-104 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 93 is drawn to the use of antibiotics (with SEQ ID NO: 7) to "stimulate innate immunity in a subject having or at risk of having an infection". Antibiotics are administered TO treat an infection, when a person cannot fight off any infection with his/her own innate immunity. Thus, it is unclear what the invention is, as opposed to that in claim 105-110. [NOTE: This rejection does not apply to claim 105-110, where granulocyte-macrophage colony stimulating factor (GM-CSF) is used (with SEQ ID NO: 7) for it's known native an exogenous use of "*stimulat[ing] the production of neutrophilic granulocytes, macrophages, and mixed granulocyte-macrophage colonies from bone marrow cells and can stimulate the formation of eosinophil colonies from foetal liver progenitor cells*. It also has some *functional activities in mature granulocytes and macrophages*. It is *used to promote the recovery of the white blood cells following chemotherapy* (see above for reference and additional information).]

In claims 103 and 110, it is unclear what is meant by "the peptide sequence is reversed". Please amend the claims to distinctly claim this via peptide sequence structure or explain on record what is meant by this phrase, and the exact structure thereto.

In claims 102 and 109, it is unclear where the cyclicization is to be performed. It is assumed via the Ser (bearing SH groups) residues at loci 2 and 11. However, amendment is

required to distinctly claim the invention. [NOTE: Claims 101 and 108, as to the claim limitations to at least one native L-form amino acid that may be in D-enantiomer form, and cyclic forms of the is presently deemed acceptable in the context of 35 USC 112 1st and 2nd paragraphs].

Observation

Notwithstanding the outstanding rejection/objections, the present invention, a combination with a peptide, wherein said peptide is SEQ ID NO: 7, was not found to be reasonably taught or suggested by the prior art of record.

Conclusion

No claims are allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Maury Audet whose telephone number is 571-272-0960. The examiner can normally be reached on M-Th. 7AM-5:30PM (10 Hrs.).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cecilia Tsang can be reached on 571-272-0562. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MA, 3/31/2007

MAURY AUDET
PATENT EXAMINER